

SINC - LINK

Vol. 4 No. 6

NOV/DEC 1986

SINC LINK IS A PUBLICATION OF THE TORONTO TIMEX-SINCLAIR USERS CLUB AND IS ISSUED 6 TIMES A YEAR. COPIES OF THE NEWSLETTER ARE \$1.50 EACH FOR NON-MEMBERS. CLUB MEMBERS RECEIVE A FREE COPY AS PART OF THE \$20.00 ANNUAL MEMBERSHIP FEE.

NEWSLETTERS ARE EXCHANGED, FREE OF CHARGE, WITH OTHER TIMEX-SINCLAIR USERS GROUPS

ALL MATERIAL IS IN THE PUBLIC DOMAIN AND CAN BE REPRINTED, PLEASE CREDIT THIS PUBLICATION AND THE AUTHOR IF YOU COPY MATERIAL.

SEND CORRESPONDANCE TO:

SINC LINK

Attention: SINC-LINK Editor
TORONTO TIMEX-SINCLAIR USERS CLUB
P.O. Box 7274 Stn. A, Toronto M5W 1X9

INDEX OF CONTENTS

PAGE 2	LETTER FROM THE PRESIDENT
PAGE 2DISKS AND SUBWAY CARS by Tom Aroella
PAGE 3/4	ZX81 RESOURCES A column by Peter McMullin
PAGE 5THE HACKER SCARE Part 2 of 3
PAGE 6	CIRCLE GAMES by Mel Richardson
PAGE 7SIGNAL BOOSTER
PAGE 7TS 2068 TIPS
PAGE 8	MICROLIFE (Listing)
PAGE 9	LARKEN UTILITIES by G. Chambers
PAGE 9LARKEN TIPS by G. Chambers
PAGE 10.	TRANSMIT USING MTERM II
PAGE 11.BOB'S NOTEBOOK by Bob Mitchell
PAGE 12.	QL CORNER by Reg Cottle
PAGE 13.JLO DISK INTERFACE-A Review by R. Mulder
PAGE 13.	COMMUNICATIONS by R. Mulder
PAGE 14.QUESTIONS -- any answers?
PAGE 14.More MURPHY's LAWS

Executive Officers

President: Reginald Cottle (416) 785-3987
Secretary: George Chambers (416) 699-0714
Treasurer: Charlie Urban
Activities Director: Doug Carter
Newsletter Editor: HELP WANTED!!
House Chairman : HELP WANTED!!
Liaison Officer (out of town members): George Chambers
Tape Librarians: John Mann (2068); Rene Bruneau (ZX81)
Paper Librarians: Jim McCormick

TORONTO TIMEX - SINCLAIR USERS CLUB

P. O. Box 7274 Stn. A Toronto, Ont., M5W 1X9
Canada

SEASONS GREETINGS!!!

Letter from the President

As you can see from the above list we have had our annual elections.

We are currently witnessing a declining enrolment. This is a result of old members allowing their memberships to lapse and as a consideration of the time, a declining enrolment of new members. All this is happening at a time of the year that is traditionally associated with a budding new interest in the club. I am concerned about the future vitality and growth of our group and the possibility of eclipse into non-existence of the Timex Sinclair Users Club and the Sinc Link that we have grown so accustomed and to appreciate. I voice not only my own concern in this regard but the concern of our past president, George Chambers. My view is that this can go two ways: we can disintegrate into non-existence or we can become a smaller, more integrated and productive association of members with clearer and better defined aims and directions for the future.

I take this opportunity to wish you and yours the seasons best Greetings and happiness in the coming year!!

Any comments or suggestions regarding the future and vitality of our club can be addressed to me at a club meeting or can be addressed to me.

Reginald Cottle
President

DISKS AND SUBWAY CARS

For those of us who blew our budgets on disk drives and are now forced to ride the subway comes good news. The TTC has found rumors that magnetically stored data being corrupted by the magnetic fields generated in the new subway cars to be false. As reported in the October 19 issue of the Toronto Star, "a test has shown that information stored magnetically on computer disks can survive the worst magnetic fields likely to be thrown at it" on the subway.

John Knight, with the TTC, said that disks were placed immediately above the spots where the magnetic fields are generated in the subway cars and no loss of data occurred. Disks were also placed on the seats nearest these spots and again no loss of data occurred.

The article in the Star goes on to report that a U.S. computer magazine found that neither ringing telephones, nor TV unscramblers nor department store security systems affected disks or the data stored on them.

However, cautions the article, this does not mean that it is advisable to mishandle or abuse your disks.

Tom Aroella

Here once again is a column which has something for the owner of every model of Sinclair or Timex-Sinclair computer, from ZX81 to QL. (Note: My use of the term "ZX81" shall refer equally to TS1000 and TS1500 computers, unless noted otherwise.)

ZX81 DISK UPDATE

I've been promising a full review of the Larken Disk controller and LDOS for some time now. Hopefully it will fall together for our next issue. Part of the reason for the delay is the fact that a new DOS has been developed for the AERCO, and I wish to include it in presenting a (hopefully) balanced appraisal of current ZX81 disk options.

BBDOS is a fully automatic, BASIC-transparent DOS for the AERCO FD-ZX and ZX81. BBDOS locates in the 8-16K region of RAM, and is claimed to be compatible with all printer interfaces. BBDOS is available for U.S.\$29.95, from Bill Bell, 596 Cherrington Road, Westerville, OH 43081, (614)-882-3883.

Further reports on BBDOS will appear as soon as I get a copy to play around with. The AERCO sure needs it. My current opinion is that the Larken system is by far the best deal for the ZX81. This is mainly because of the excellent LDOS. I'm not advocating that AERCO owners all run out and buy a Larken, (especially with the availability of BBDOS), but for the new buyer, the Larken is the obvious choice. The initial cost is nearly \$100.00 less than either the AERCO or the CompuS, and you don't have to spend an extra \$30 to get an excellent DOS.

DUNGEON OF YMIR (TS1500)

Brief Description: Dungeon of Ymir is a multi-level maze adventure game written completely in machine code. Ymir requires 24K of RAM, and versions are available for the 1500 with a Hunter Board or other 8-16K RAM, OR for the 32K 1500 (with 16k Rampack). Ymir is true HI-RES, using a HI-RES technique which works only with the 1500 (NOT the 1000 or ZX81). A version for the ZX81/TS1000 is scheduled for release in the near future.

Dungeon of Ymir is available for \$24.95 from FRED NACHBAUR, C-12, MTN. STN. GROUP BOX, NELSON, BC, CANADA V1L 5P1. Fred also has many other fine hardware and software products for the ZX81 family. Write for details.

WHAT IS THIS YMIR??

Upon loading (in 2 parts), a 64 column cover screen displays the Cast of Characters, and control keys. The object of the game is to successfully make it to the 9th level of the maze, retrieve the SWORD OF KASLO, and return it to your village. The game operates in the traditional form of the genre: you have a certain number of Hit Points (damage you can sustain), based on your Experience level, healing rate, and on what spells and potions you have at your disposal. On your journey, you will encounter 16 different types of monsters, lamps, mystery chests (which can be either very good or very bad), pits, ceiling holes, stairs up and down, gold (which is "cached in" for Experience Points at the Temple of Asylum on each level), and an Oracle, who can hand out useful gifts, make suggestions, and punish impudence.

DUNGEON OF YMIR cont.

There are also several types of Spell Vials, which may be simply found in the maze, or in a mystery box, or handed out by the Oracle. These include Teleport spells, Rejuvenation spells, Healing potions, Drift spells, Shield spells, etc.

The playing screen is very impressive, with hi-res UDGs for all the monsters and objects. The maze is revealed only as you travel through it. As you proceed to lower levels, monsters become more difficult to cope with. Monsters are in constant motion, which starts randomly and takes on more evil intent as the game progresses! Critical information is displayed throughout the game on the bottom line of the screen. A FAST-SAVE with autoboot reloading permits the game to be saved in progress at any time, and reloaded in 70 seconds. I have found the fast save/load to be very reliable.

Conclusions: I must confess that I was very skeptical when I first loaded YMIR, since I've never been a D&D-type game aficionado. ("OK, I'll load Fred's new game, just to be polite...") My skepticism quickly turned to interest, curiosity, frustration, fascination, addiction. The graphics and animation are excellent (the little man bends over when you pick something up!), and the presentation of auxiliary screens (progress reports, etc.) is snappy and eye-catching. Dungeon of Ymir is, in the words of its author, "easy to play, difficult to master". I'm hooked, and I have yet to live past the 3rd level. This game has even made me late for work. Dungeon of Ymir is five-star software: a MUST-HAVE. You've really done it this time, Fred!

MORE MODified Shapes

A tiny error crept into the program listing in ZX81 Resources #8: Line 730 should read: LET ARG=C, rather than LET C=ARG, as it appeared. This error doesn't cause a serious problem, but it affects the colour mapping of the pattern and looks better when corrected.

More MODULO math: last time, we discussed the use of the MOD operator in IBM BASIC, and its mathematical derivation. In the MODified Triangles program, we used a one-line subroutine to replace the MOD command, which looked like this:

```

5 REM MODULO SUBROUTINE
6 LET RES=ARG-INT (ARG/MOD)*MOD
7 RETURN
    
```

The variables used are:

RES: The result
 ARG: The numeric argument
 MOD: The MODULO divisor.

Thus, the program lines:

```

100 LET ARG=X
110 LET MOD=Y
120 GOSUB 5
    
```

Would yield the same result as the IBM BASICA line:

```

100 (LET) RES= X MOD Y
    
```

The MOD operator is commonly used to check for perfect integer divisions, and to generate number sequences. For example, any number taken MOD 5 will result in 0 if the number is evenly divisible by 5, or the integer remainder if it is not evenly divisible.

MORE MODified Shapes cont.

Further, if one wrote a short loop:

```
10 LET N=0
20 LET N=N+1
30 LET C= N MOD 5 (or equivalent-see above)
40 GOTO 20
```

You will see that as N increases linearly towards infinity, the variable C will repeat endlessly through the sequence 0,1,2,3,4,0,1,2,3,4,0,1,...

These properties of the MOD operator lend it to a wide variety of uses in many different types of programs.

The program presented this issue is adapted from "MODified Shapes for IBM", by Paul W. Carlson, in COMPUTE! magazine, May 1986 issue. The result is similar to the MODified Triangles program printed last time.

To further quote Mr. Carlson: "MOD is also useful when arrays must be treated as circular rather than linear. For example, say you have a numeric array X composed of three elements, and that elements X(1), X(2), and X(3) contain the X coordinates for the vertices (corners) of a triangle. In this case, if X(n) is the X coordinate for the beginning of a side, then the expression X(n MOD 3+1) gives the X coordinate for the end of that side. This sort of expression appears in Programs 1, 2, and 3 which compute the variable NJ with MOD. The result becomes an index into the arrays containing the vertex coordinates whenever the program needs to know the values for the end of a side."

In these programs, "The variable SU selects the spot on the side of a figure where the figure's corner will land after it is rotated and redrawn. If you're not sure what that means, try changing SU to a slightly different value and rerunning the program... "The variables I and J represent the column and row of the current figure. The arrays X and Y contain the relative vertex coordinates for the current rotation. The arrays Z and T contain relative vertex coordinates for the next rotation. N is the current rotation, M is the current side of the polygon, and NJ performs the function described above."

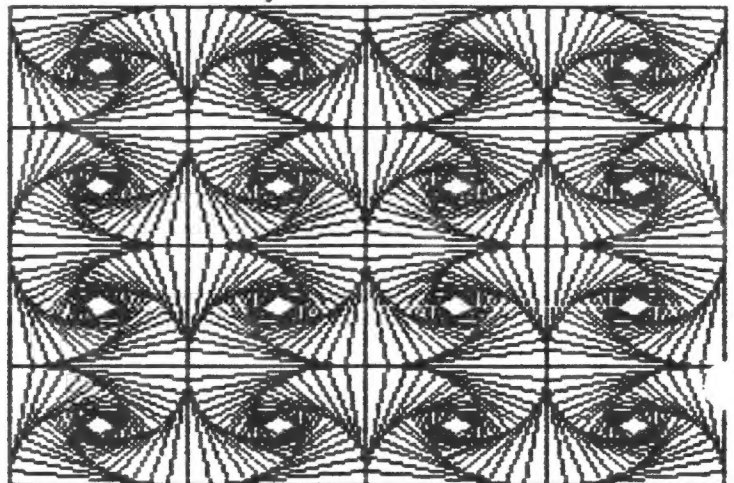
Here's the listing for program 2, MODified Squares. For T/S2068, ZX81 with JLD Video System and JOBASIC or PIXL-ATR, or with any software hi-res package which provides a DRAW or LINE command.

```
2 REM For ZX81: INITIALIZE JOBASIC OR PIXL-ATR ETC.
3 GOTO 40
5 REM MODULO SUBROUTINE
6 LET RES=ARG-INT (ARG/MOD)*MOD
7 RETURN
10 REM IBM>SINCLAIR PLOT SCALING
15 LET XX1=(X1/1.25)+XSET
20 LET XX2=(X2/1.25)+XSET      2068: USE
25 LET YY1=191-(Y1/1.1)      YY1=175-(Y1/1.3)
30 LET YY2=191-(Y2/1.1)      YY2=175-(Y2/1.3)
35 RETURN
40 DIM X(4)
50 DIM Y(4)
60 DIM Z(4)
70 DIM T(4)
80 LET XSET=-3
100 LET SU=.12
110 LET RU=1-SU
```

MORE MODified Shapes cont.

```
200 FOR I=0 TO 3
210 FOR J=0 TO 3
220 LET ARG=I
230 LET MOD=2
240 GOSUB 5
250 LET RI=RES
260 LET ARG=J
270 GOSUB 5
280 IF RI=RES THEN GOTO 400
300 LET Y(1)=49
310 LET Y(2)=0
320 LET Y(3)=0
330 LET Y(4)=49
340 GOTO 500
400 LET Y(1)=0
410 LET Y(2)=49
420 LET Y(3)=49
430 LET Y(4)=0
500 LET X(1)=20
510 LET X(2)=20
520 LET X(3)=89
530 LET X(4)=89
600 FOR N=0 TO 17
610 LET X1=X(4)+I*69
620 LET Y1=Y(4)+J*49
700 FOR M=1 TO 4
710 LET X2=X(M)+I*69
720 LET Y2=Y(M)+J*49
800 LET ARG=M
810 LET MOD=2
820 GOSUB 5
830 LET C=RES+1
835 REM SET INK COLOUR BY C
840 GOSUB 10
850 REM DRAW SIDE (JOBASIC)
855 IF USR V THEN LPRINT D;XX1,YY1;XX2,YY2
860 REM DRAW SIDE (2068)
865 PLOT XX1,YY1: DRAW XX2-XX1,YY2-YY1
```

Note that JOBASIC and PIXL-ATR use ABSOLUTE coordinates for the DRAW command, while the 2068 uses DRAW coordinates which are RELATIVE to the last point plotted. More on this, and another neat listing in the next ZX81 Resources.



THE HACKER SCARE

by John T. Nguyen

part 2 of 3

During the late 70's and early 80's, the micro-computer revolution was coming of age, and for the first time in computer history, computers became widely available to the public at low prices. Because of advances in integrated circuit technology, computers that used to fill an entire room were now able to fit on someone's lap. This tremendous decrease in size helped to lower the price of computers, and as a result, every household in the USA as well as abroad was taking part in buying one of these clever machines.

At the height of the Computer Revolution, many of the computers that came out were not really computers at all but were game machines. Companies such as Atari developed a cartridge-based computer system which plugged into a television set and allowed players to interact with video images on the screen using joysticks and paddles. Parents were relentlessly nagged by their children to buy one of these machines for them. At the same time, true computers which had a keyboard attached were also available. These machines were also capable of playing games on, but they also had programming capabilities. Once again, parents were nagged into making the purchase. The parents were persuaded also by television commercials which promised that making such a purchase would help their children enter into the race for computer literacy and help their children improve their grades at the same time. Once the purchase was made, the parents would either lose interest in these machines or would try to avoid them, and their children would be left alone to play to their heart's content on these computers.

For many youths in the 1980's the first thing that attracted them to these machines were the colorful games which computers were so good at playing, but soon the programming aspect of computers became an engrossing activity also. These youths did not know it then, but they were slowly being transformed into hackers. (in the traditional sense of the word), and because so many households owned computers, the number of hackers in the US as well as abroad grew to incredible proportions. Most of these youths were contented with just writing short BASIC programs and playing with their computer games in between, but there were a handful who grew tired of this and began to explore the world of modems and telecommunications.

Hackers of the 1980's did most of their "work" with the help of a little device called a modem. A modem is a machine about the size of a box of Whitman Sampler, and smaller. It can cost anywhere from \$50 to \$200, and it's purpose is to link two computers together. Usually the link is between a large computer and a microcomputer, but it is possible to link two microcomputers together or two large computers together. The connection is made through the telephone line, so instead of having signals relay electronically from one computer to another, the connection is established through sound. This is analogous to two morse code stations relaying messages across except the modems are a great deal faster at interpreting and sending out signals. The process by which two computers interact through the phone line is

called telecommunications. As one might expect, a hacker who is involved in telecommunications can expect to have a huge telephone bill at the end of a month if the computer he communicates with is hundreds of miles away from him. To solve this phone bill problem, many hackers resort to "phone phreaking". "Phreaking" can be classified into two types. The first was described earlier, and it involves the usage of devices which mimic operator tones, allowing the hacker to make free phone calls. The second type, described by Manuel Shchiffres in his article "The Shadowy World of Computer 'Hackers'", includes such techniques as breaking into corporate switchboards through phone lines to make conference calls, and using stolen ID numbers for Sprint, MCI, or other toll services (58). Before a hacker can communicate with an outside computer, he must first obtain the telephone number which links to that computer. Second, he must obtain an ID name as well as a password which will allow him to actually "enter" into the computer. Peterson, in his article entitled "Computer Hacking and Security Costs", describes one method which a group calling itself the 414's uses to "break" into computer systems. The group would first select an area code (414, for example), and then they would systematically dial every number in that area until a certain tone is heard. The tone is characteristic of a certain type of computer brand. Knowing the computer brand enables them to look through manuals which list standard ID and passwords for these brands when they were first shipped from the factory. In many cases, owners of these computers neglect to change the password, so the hackers can log-on or "enter" into these computers with the standard ID's and passwords (294). Once they're inside the system, the hackers can find other passwords or codes that will allow them to access privileged accounts and thus be able to look at sensitive data. Hackers can also obtain phone numbers, ID's, and passwords from relatives or friends who work with computers. Sometimes this information is taped next to a computer (in a hospital, for example), and all the hacker would have to do is to walk by and copy down the information.

Besides breaking into computer systems, hackers engage in other activities. One of these include logging into electronic bulletin boards. These boards are basically just computers which have a large amount of information stored in its memory for perusal purposes. They cater to every interest from comic books to current events. The boards provide information on "what's new". Callers are invited to submit tidbits of information on any subject he wants to. Many of these boards are open to the public and exist only as a public service. But then there are also underground bulletin boards which provide your basic hard-to-obtain information. These boards have such fanciful names as Dragonfire, Sherwood Forrest (sic), Forbidden Zone, Blottoland, PloverNet, The Vault, Shadowland, PHBI, and many others. The following is the welcome message from the Dragonfire bulletin board in Gainesville, Texas:

"As you are surveying the dark and misty swamp you come across what appears to be a small cave. You light a torch and enter. You have walked several hundred feet when you stumble into a bright blue portal... With a sudden burst of light and a loud explosion you are swept into DRAGONFIRE... PRESS ANY KEY IF YOU DARE....

From SLUG, the St. Louisville Users Group newsletter.
retyped by GFC

CIRCLE GAMES

by Mel Richardson

One of the delights of the Oliger Video Upgrade for the T/S 1000 is being able to run programs intended for machines beyond normal ZX capabilities. Peter McMullin has shown this with his recent article using the Modulo function and a "Computer Recreations" column by A.K. Dewdney in the September Scientific American prints the outline of a similar program by John E. Connett creating "Wallpaper For the Mind". Connett found that using the formula for the graph of a circle (X^2+Y^2) to assign a colour to the point X,Y. A complex pattern of circles emerges with an underlying pattern of squares. Thus the program is called "CIRCLE".

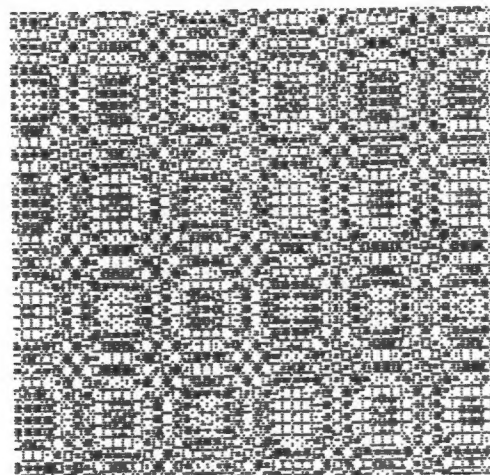
The patterns appear to repeat, but a closer look shows this is not so and each area is subtly different from its neighbors. Although the program is quite simple, I recommend reading the article. It has two more routines and wonderful photos with more background than be covered here.

This program is written for the Oliger system with Fred Nachbaur's "Jobasic" but a normal ZX using "Graphica" or the 2068 should handle it. The lines up to 10 are Jobasic initialization and should be changed for your system. The "IF USR M2 THEN..." is also Jobasic syntax.

The variables CORNA, CORNB & SIDE define the lower left corner and side length of the part of the plane of numbers to be examined. In other words, a smaller SIDE "magnifies" the image.

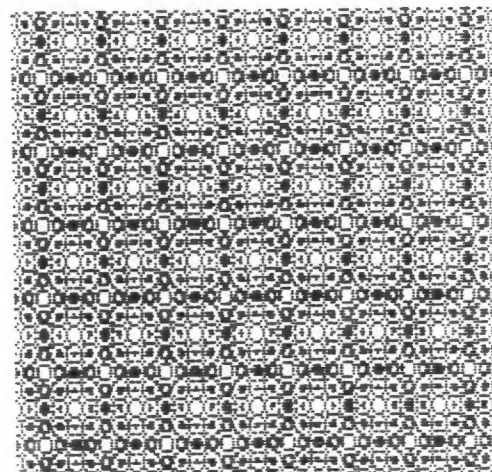
Lines 30-90 evaluate X^2+Y^2 through the loops and places the resulting integer in "C". Line 100 tests C for "evenness" and line 110 plots the point if C is even. It might be interesting to assign colours to ranges of C. You are encouraged to experiment with the variables and the array size in lines 30 and 40. The figures in line 110 centre the display and should be changed to suit the array size.

Some examples to try are:
CORNA -15, CORNB -20, SIDE 87
CORNA -30, CORNB 5, SIDE 40
CORNA 20, CORNB -10, SIDE 20.



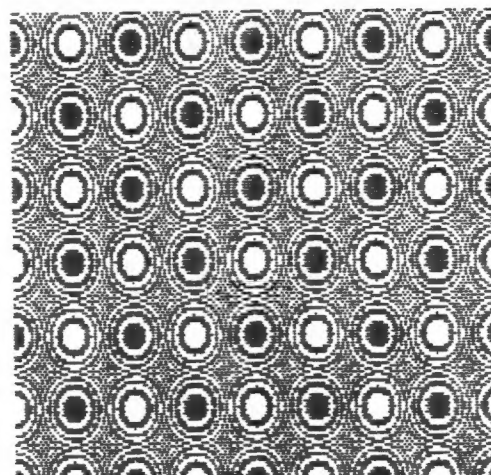
Z-COPY R-RESTART

CORNA? -30 CORNB? 5 SIDE? 40



Z-COPY R-RESTART

CORNA? 20 CORNB? -10 SIDE? 20



Z-COPY R-RESTART

```

2 REM >CIRCLE SQUARED
3 REM
4 REM JOE BASIC, GRAPHICA OR OTH
ER HI-RES INITIALIZTION HERE
5 REM
8 REM INPUT VARIABLES
10 IF USR M2 THEN PRINT "CORNA
12 IF USR M2 THEN INPUT CORNA
14 IF USR M2 THEN PRINT "CORNB
16 IF USR M2 THEN INPUT CORNB
18 IF USR M2 THEN PRINT "SIDE?
20 IF USR M2 THEN INPUT SIDE
25 REM 170X120 PIXEL DISPLAY
30 FOR I=1 TO 170
40 FOR J=1 TO 120
60 LET X=CORNA+(SIDE*I/100)
70 LET Y=CORNB+(SIDE*J/100)
80 LET Z=X*X+Y*Y
90 LET C=INT Z
92 REM
95 REM TEST FOR EVENNESS
100 LET E=C/2-INT (C/2)
110 IF NOT E THEN IF USR M2 THE
N PLOT I+40,J+36
120 NEXT J
130 NEXT I
1000 IF USR M2 THEN PRINT AT 23,
0;"Z-COPY R-RESTART"
1010 IF INKEY$="" THEN GOTO 1000
1020 IF INKEY$="Z" THEN IF USR M
2 THEN COPY
1022 IF INKEY$="R" THEN RUN
1025 GOTO 1000

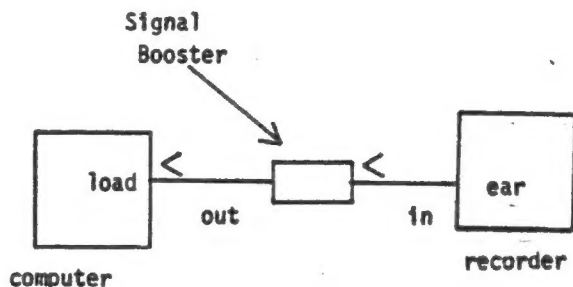
```

SIGNAL BOOSTER

Correct cassette loading problems
by HAL SOHN

The signal booster consists of one miniature audio transformer. The transformer is used as an interface between the computer and the cassette player.

Examples:



The signal booster has the following advantages:

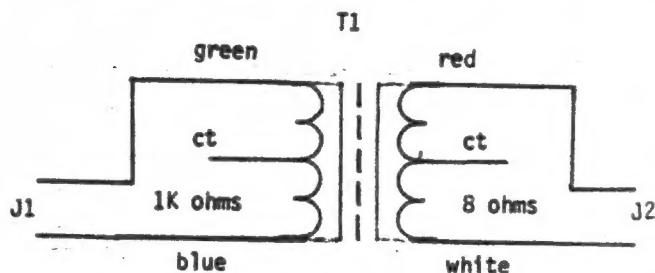
1. Isolates the computer from the cassette player, which eliminates noise.
2. Increases the audio signal amplitude.
3. Cassette player volume setting can be adjusted to a lower level, thus improving the signal/noise ratio, this lower level setting decreases the inherent noise caused by high level of volume setting of volume control of most cassette players.

4. Increased signal amplitude, allows for misalignment of the record/playback head, which causes low signal amplitude.

5. No power required.

6. LOW COST.

SCHEMATIC:



CONSTRUCTION

1. Drill two .250 (1/4 inch) holes in a plastic pill bottle, one through the cap, and the other through the bottle bottom.

2. Solder transformer leads to jacks (J1) and (J2) as per schematic, then insert into the plastic bottle.

NOTE: Don't use a metal container, the metal prevents proper isolation and grounding between the computer and the cassette player.

Parts List

1. T1 - 1K to 8 ohms (Radio Shack 273-1380)
2. J1 & J2 (Radio Shack 274-297)
- 3 Plastic pill bottle to fit transformer T1

When using signal booster, use a lower volume setting for best results.

Reprinted from the May/June issue of SINCUS NEWS

Retyped by G.F.C.

TS 2068 TIPS

```

1 REM Inverts Screen display
10 FOR n=16384 TO 22527: LET x
=PEEK n: POKE n,255-x: NEXT n

```

```

1 POKE 23672,0: POKE 23673,0
10 REM Go to LINE 9999 to find
the elapsed time in seconds
that program has been running
9999 PRINT INT ((PEEK 23672+256*
PEEK 23673+.5)*100/60.1145+.5)/1
00

```

```

1 REM Checks to see if TS2040
Printer is turned on
9997 IF IN 251<>126 THEN PRINT "
Printer On"
9998 IF IN 251=126 THEN PRINT "T
urn Printer On"

```


MACROLIFE

As with most life programs Macrolife is a computer simulation of the birth, growth and death cycle of a colony on cells living on a grid. The difference lies in the size of the grid. Macrolife uses a 256 x 192 grid compared with the usual 32 x 24 sized grid. The effect is a series of interesting and intricate patterns.

The basic premise for the program is rather straight forward. Each pixel represents a square on the grid. The square may either be occupied by only one cell or empty. This initial configuration is called generation zero. The successive generations are plotted according to the number of neighbours each cell has. If a cell has either two or three neighbours it will live. Any less or any more and the cell dies. New cells will be born if an empty square has exactly three neighbouring cells.

The program will run on either a Spectrum or a TS2068 with Spectrum emulator. The core of the program lies in lines 100 - 150, 1000 - 9121. The remaining portion loads a number of initial configurations but you are encouraged to try your own.

The program is designed to wrap around both top to bottom and right to left. To disable the wrap function add the line;

```
1005 INVERSE 1:PLOT 0,0:DRAW 255,0:DRAW 0,175:DRAW -255,0:DRAW 0,-175:INVERSE 0
```

The machine code is loaded in starting at address 32768 and is 169 bytes long. A disassembled version of the code can be seen in Toni Baker's Macro-life article, (ZX Computing, Oct/86), from which this program was adapted.

```

1 CLS : GO TO 100
5 PRINT AT 4,0;"Welcome to a
simulation of life."
10 PRINT AT 7,2;"Included are
a number of"
15 PRINT AT 8,2;"programed sta
rts as well as";TAB 2;"a random
start. You are";TAB 2;"encou
raged to program your"
17 PRINT TAB 2;"own initial co
nfigurations."
20 PRINT #1;"ENTER to continue"
"
22 PAUSE 0
25 CLS
30 PRINT AT 2,6;"INITIAL CONFIGURATION"
32 PRINT AT 5,8;"A-----Square"
34 PRINT TAB 8;"B-----Cross"
36 PRINT TAB 8;"C-----Circle"
38 PRINT TAB 8;"D-----Rays"
40 PRINT TAB 8;"E-----Grid"
42 PRINT TAB 8;"F-----Frets"
44 PRINT TAB 8;"G-----Random"
46 PRINT AT 21,1;"Press key fo
r desired choice."
48 LET i=CODE INKEY$: IF i<97
OR i>103 THEN GO TO 46
50 IF INKEY$<>" " THEN GO TO 50
52 CLS : GO TO i*5
100 CLEAR 32767: LET a$="": RES
TORE 9100
110 FOR i=0 TO 21: READ d$
120 LET a$=a$+d$: NEXT i
130 LET address=32768: FOR i=1
TO LEN a$-1 STEP 2
140 POKE address+INT ((i-1)/2),
(CODE a$(i)-(48 AND CODE a$(i)<5
8)-(55 AND CODE a$(i)>64))*16+CO
DE a$(i+1)-(48 AND CODE a$(i+1)<
58)-(55 AND CODE a$(i+1)>64)
150 NEXT i
155 GO TO 5
485 PLOT 88,48: DRAW 80,0: DRAW
0,80: DRAW -80,0: DRAW 0,-80
487 GO TO 1000
490 FOR i=USR "a" TO USR "a"+7:
POKE i,128: NEXT i
491 PRINT #0;AT 0,16;"|";TAB 16
;"|"
```

```

492 PLOT 0,80: DRAW 255,0: PLOT
128,0: DRAW 0,175
493 GO TO 1000
495 FOR i=10 TO 80 STEP 10: CIR
CLE 128,80,i: NEXT i
497 GO TO 1000
500 OVER 1: FOR i=-128 TO 127 S
TEP 3
501 PLOT 128,0: DRAW i,175: NEX
T i: OVER 0
502 GO TO 1000
505 FOR i=USR "a" TO USR "a"+6:
POKE i,1: NEXT i
506 POKE i,255: PRINT #0;AT 0,0
"
507 FOR i=1 TO 704
508 PRINT "|": IF i<65 THEN PR
INT #0;"|":
509 NEXT i: GO TO 1000
510 FOR i=60 TO 140 STEP 20: PL
OT 0,i: DRAW 255,0: NEXT i
511 FOR i=15 TO 256 STEP 32: PL
OT i,60: DRAW 0,79: NEXT i
512 GO TO 1000
515 FOR i=1 TO 4: LET X=INT (RN
D*30): LET Y=INT (RND*20): PRINT
AT X,Y,"*****"
516 NEXT i
517 GO TO 1000
1000 RANDOMIZE USR 32845
1010 GO TO 1000
9100 DATA "257CF6F83C20417D"
9101 DATA "D6206F7C3805C608"
9102 DATA "671835FEBF203126"
9103 DATA "D7182D247CE50720"
9104 DATA "277DC6206F7C3805"
9105 DATA "D60867181BFED820"
9106 DATA "1726C01813CB0130"
9107 DATA "0F7D3D1806CB0930"
9108 DATA "077D3C0ADE61FAD6F"
9109 DATA "79A6C804C9210040"
9110 DATA "1100C001001805ED"
9111 DATA "80E10E800600C5E5"
9112 DATA "CD0080CD03D80CD1B"
9113 DATA "80CD1B80CD3580CD"
9114 DATA "3580CD0080CD0080"
9115 DATA "78E1C1CBBCE0238"
9116 DATA "0CFE043003FE0320"
9117 DATA "0879B61803792FA6"
9118 DATA "77CBFDCB0930C5CD"
9119 DATA "41807DE61F2080CD"
9120 DATA "1B807CEE08B520B4"
9121 DATA "C9"
```


LARKEN UTILITIES-TS2068

by George Chambers

Since the LARKEN DD interface became known to our club about 20 members have purchased it. At the same time several of these owners have been busy writing utilities for it. Purpose of this article is to make our members aware of the availability of these utilities. If you are interested, contact our LARKEN SIG coordinator Peter Hacksel, at 247 Queen St. E., Toronto, Ont. M5V 1Z5 (phone 416-596-1663). Or contact myself.

A. LIST PROGRAM & TRACKS "dump.B1"

This BASIC utility starts with track 0 and displays on-screen the data about each track in turn. The display shows, in single-line entry the track number, program name, starting address of the program in the 2068 memory, and the number of bytes of program on that track.

B. DISC CATALOGUE "cat.B1" "ca.C1" "PRCODE.C1" by Peter Hacksel

This utility will display on-screen, or optionally by printout, details of each program on the disk. The details will include program name, starting address and number of bytes in each program and track numbers used by the program. The difference between these two programs is that the first one gets its information from the directory track, while the second program looks at each track in turn for details.

C. DISK COPIER "copy.B1" by George Chambers

A BASIC routine which facilitates the copying of programs disk-to disk, using a single drive. Copies on a program basis, copying programs up to 14 tracks in length. Makes use of the LDOS28 copy routine.

D. COPYDOG "copydg.C1" by Eric Michaud

A machine code program which will copy a disk using a single drive. It copies 16 tracks at a time, thus requiring only 5 passes to copy all tracks of a disk.

E. TRACK READER "reader.B1" by Greg Lloyd

This utility will display the contents of disk tracks successively, starting at track 0. A specific track can be brought up by a change in a program line.

F. DOCTOR "doctor.B1" by Peter McMullin & George Chambers

This utility is probably the most useful of all. It has several options, the most useful being the ability to inspect/modify any directory tracks.

G. INDEX "index.C1"

by Bob Mitchell & George Chambers

A compiled version of a BASIC utility to maintain a record of all your on-disk programs. Just feed in your disks, and the program will store the details. You can then use this record to display, search, sort, and print out records of your disk files.

H. RENAME "rename.B1" by Bob Mitchell

With this program you may change the name of any program on your disk. It will go through the Directory track and the other tracks where the program is located to change the name of the program.

I. LPRINT DIRECTORY "lpdir.B1" by Bob Mitchell

Useful for printing out the contents of a disk so as to make a label to stick on the disk jacket.

The above programs are for the TS2068. Some of them also have ZX81 versions. DOCTOR is an example.

LARKEN TIPS-TS2068

by George Chambers

I am going to detail three unusual conditions which I have encountered with the LARKEN drive, and the explanation of them.

1. RAMTOP gets set to a low number (PRINT FREE 36604) and cannot seem to be reset to the normal value of (PRINT FREE) 38652.

ANSWER...The computer has been bank-switched (84,64) for the LARKEN drive. Do an 84,0, and RANDOMIZE USR 0. The computer will re-initialize and set a new RAMTOP.

2. BASIC loader program gets corrupted when using the LDOS16 to load a subsequent program.

ANSWER...This comes about through using RANDOMIZE USR 16000 rather than RANDOMIZE USR 16384. Although using 16000 appears to work OK, it actually goes into the 2068 ROM area and produces the quirk mentioned above.

3. The LDOS cursor sometimes appears with an underline below it. Although faulty entries can be deleted the underline remains.

ANSWER...What has happened is that the OVER 1 command has been placed in the computer by a previous program and has not been cleared out (by the DOS). This failure to detect and remove the OVER 1 command might be considered a DOS bug. Get into BASIC and do an OVER 0 command.

TRANSMIT USING MTERM II
by David M. Gray of EBZUG
BASIC PROGRAMS

MTERM has to be first loaded into memory, and then executed. Go to the "BUFFER" menu, and select the "ERASE BUFFER" mode. The BUFUSED should display "0".

The CONversion must be set for "HEX".

The screen should now display:

BUF: CLOSE	XMIT: OFF	BUFTOT: 27256
DUP: FULL	WORD: 7	BUFUSD: 0
LF : ON	STOP: 1	BUFFRE: 27256
CR : OFF	PRTY: EVEN	BUFXT: 0
CON: HEX	DSPW: 32	BUFPND: 0

The next step is to return to the main menu, and select "EXIT TO BASIC".

MERGE your BASIC program that you want to transmit if you are transmitting your buffer to a friend. "MERGE" makes the program "non Auto-start", and if the program is long, it may take a while for the computer to give you a BASIC "K" cursor. Then type "PRINT USR 54016" to start MTERM. The buffer should now have changed. The new number in BUFUSD should be equal to the number of bytes of the BASIC program.

Double check to be sure the buffer is closed!!!

Call your friend using the terminal mode, and you can communicate normally. Your friend's buffer should be closed, empty, and identical to the chart at the top of this paper!

Tell your friend when you are ready to send your buffer. Your friend must then not touch the keyboard!! This is critical because you are going to open your friend's buffer, and if you or your friend type anything, the buffer will be corrupted with non-program characters.

Press "CONTROL R" (e.g. Hold CAPS SHIFT and "7" at the same time, then press "R"). Nothing should happen on the screen of the person who is sending, but the person who is receiving will see at the bottom of his screen "BUFFER OPEN". Once again go to the main menu by typing "CAPS "8" then select "M". Go to the buffer menu by entering "D" then select "T" (for transmit).

The screen will prompt "PROMPT STRING". Just press "ENTER"! The screen will now ask "CHARACTER DELAY", and again press "ENTER". The bottom of the screen should now display "XMIT: ON"!!!

Press "ENTER" to return to the menu, and then press "ENTER" again to enter terminal mode.

Hexidecimal codes should now appear on the screen, showing that the program is being transferred into your friend's buffer. DO NOT PRESS ANY KEY!!!

When all the bytes are transferred, the screen cursor will stop moving. Pres "CONTROL T" (e.g. hold CAPS SHIFT and "7", then press "T"). Your friend's buffer will now close, and you can type again.

Ask your friend if:

1. THE buffer has opened.
2. Hexidecimal characters were transmitted.
3. HEX and only HEX was transmitted.
4. The buffer closed.

If your friend answers "NO" to ANY of the above questions, repeat the entire procedure again (this has not happened to me yet).

If your friend answers "YES", then tell him to hang up the phone, and call you, using his voice, not using the computer.

Tell him to go to the main menu, and press "E" to escape to BASIC. He should now see the top of the BASIC program you sent him.

NOTE: As you can see, I expressed that when a buffer is open, you must not type!! IT IS CRITICAL!!

The buffer of the person who is sending, should never open up, EVER!

The person transmitting should be careful to follow instructions "EXACTLY" or the buffer will be corrupted.

Don't worry about destroying the buffer when you are not in terminal mode, or when you press "CONTROL "R", or "CONTROL "T".

If there are any problems, call VOICE at (415) 754-2054, and ask for DAVID.

or write:

DAVID GRAY - HELP
3505 Brookdale Court
ANTIOCH, CA 94509 (USA)

Good luck, and have fun!

Taken from the Nov/Dec 86 issue of TIMELINEZ, the newsletter of the San Francisco Bay Area T/S User Grps Retyped by G. Chambers.

BOB'S NOTEBOOK

Since I started writing this column for Sinc-Link, I have been concentrating on the art of programming both in BASIC and in Z80 machine language. I have found that typing in BASIC programs and understanding the intent of every routine and line has helped me to write some fairly complex programs. Also, after laboriously typing in a lot of machine code routines and dissecting them via a good disassembler, I have been able to understand some of the routines well enough to at least be able to modify them to suit my own applications.

There have been many excellent BASIC programs published in such magazines as Your Computer and ZX Computing and in those programs have been some very good routines that I have been able to work into my own concoctions. The demonstration tape provided by Timex with the TS2068 is a goldmine of such useful ideas. By examining the way ON ERR was used in 'budge' on that tape, I was able to make good use of a rather tricky command: listed below is an application of ON ERR in a password routine which will work with programs saved on the Larken Disk system.

First, a comment about the password routine which appeared in the May-Jun issue: this will not work very well since there must be an ON ERR RESET statement at the beginning of line 100; otherwise, the program will hang up. Furthermore, the password routine can be defeated by using the Sinclair MERGE command. One of the shortcomings of the Larken system is that it does not support 'merge'; you have to do all your MERGEing via tape. But every cloud has a silver lining and the lack of merge with LDOS allows the password routine to work acceptably.

I found that an 'ON ERR GO TO' statement was needed just before the LDOS save statement. This stops the unauthorized user from using the Caps Shift and Break keys to stop the program from loading from disk and so see the listing and data. This you do not want to happen! This is shown at line 3533.

Now, no matter what keys you press, the program loads and presents the prompt "Enter password". You can try and try but you must know the right password or words or you simply cannot list or otherwise enter the program. With a correct password, the program advances to the autostart line (where there will be an ON ERR RESET or else!) and the break key will be working normally. Lines 4020 and 4030 are needed to complete the loop if a proper password is not entered. Line 3530 sets up the file name in s\$ for saving via LDOS48.

Note my use of two passwords in line 4010. You may have as many or few as you wish. These are just examples.

```
3520 REM SAVE YOUR FILE
3530 CLS : LET S$="Tax"+V$+"B1"
: PRINT "SAVING AS: ";S$
3531 OUT 84,64: RANDOMIZE USR 63
400
3532 REM load "LDOS48.C5"
3533 ON ERR GO TO 3536: OUT 84,6
4: RANDOMIZE USR 48000
3534 REM save s$
3536 ON ERR GO TO 4000
4000 CLS : INPUT AT 0,0;"Enter p
assword "; LINE p$
4010 IF p$="password" OR p$="unl
ock" THEN GO TO 610
4020 ON ERR GO TO 3536
4030 ON ERR CONTINUE
```

At line 4000, as you enter your password, it will appear on the screen. Afraid of someone looking over your shoulder? Try the following changes:

```
4000 CLS: PRINT AT 19,0;
"Enter password"
4002 PAUSE 30
4004 POKE 23658,0: POKE 23607
,200
4006 INPUT LINE p$
4008 POKE 23607,60
```

Finally, if you use the BASIC compiler Timachine, you will know that it does not support ON ERR. Not to worry! You can put the password routine into a loader program which will contain the start addresses that will make it almost impossible for anyone to invade the privacy you have set up!

NOV 4 1986

R.H.Mitchell

QL CORNER BY REGINALD COTTLE

As a new owner of a QL I have become aware of an amazing amount of support available for what many people think of as an orphaned computer. It has come to my attention that the only place it was orphaned was in the general North American retail market. The December 1986 issue of (Sinclair QL World Magazine Incorporating QL User) lists many new products available for the QL, and products in the development stage. Some of the old software packages are being reissued and new ones are appearing to accommodate a multitude of needs. One program is FCB Designer 2; it allows design of Double-sided board of sizes up to 270 mm X 150 mm; it incorporates zoom facility and produces Printouts suitable for direct tracing. There are also Cad packages available in 2D or 3D. A newly introduced video digitizer allows the QL to make computer records of incoming documents and has many applications for artists. A new software package allows you to do multitasking; that is you can prepare a document while your spreadsheet is working out some probability factors and your Psion chess game is planning its next strategic move. A new Mini Modem, smaller than a cigarette package, has now arrived, and is selling for only 49.00. Desk Top Publishing has now become possible with software package released by GAP Software for 22.50. SCHON Keyboards has just released the first replacement keyboard for the QL at 54.95. Three other firms are currently working on replacement Keyboards for the QL. There are a multitude of hardware houses producing Memory add ons to increase your Ram to the 640K maximum, and when it comes to considering storage we have similar circumstances in a number of popular forms. There are microdrives, floppy disks, and hard-disk packages available allowing as many as eight 20 megabyte units to be attached simultaneously to the QL. There is a new software application called Xchange that allows you to run your QL software on IBM PC XT/AT and compatables. So far I've mentioned only a few of the many new wonders available for the QL. In future newsletters I will review QL developments in the making and elucidate on the developments that brought the QL to its present unfolding for For the newer QL owners among us. I know of three and I'm sure the A+ Computing Sale of an unbundled QL for \$139.00 U.S. has probably attracted a few more I've not yet heard of. At this time KNIGHTED COMPUTERS, 707 HIGHLAND STREET, FULTON, NEW YORK, U.S.A., 13069 is offering an assembled QL and software for \$209.00 U.S. For those of you seeking more insight, QL World is available at 45.00 a year from Sinclair/QL World Oakfield House, Perrymount Rd., Haywards Heath, England, RH16 3DH.

Dec '86

FOR SALE:

Timex 2068 complete with Compudeck JT1115 tape recorder and over 25 cassettes of utilitese and games suchas Tasword II, VuCalc, Zeus Assembler, Penetrator, Chequered Flag, etc., etc. \$150.00. Phone: Charlie at (416)293-6789 after 6:00 P.M.

John Oliger Disk Interface

Available from:

The John Oliger Co.,
11601 Whidbey Drive
Cumberland, IN 46229
U.S.A.

Cost: Motherboard-\$43.95 us

Disc board "A" \$66.95 us

Disc board "B" \$63.95 us

Package boards A + B \$127.95 us

all costs are for assembled and tested

REMARKS: Physically speaking, the JLO system boards are of a very high quality and well layed out. The first issue of the system had a few piggy-backed IC's and a few haywires. The current issue has none of this. There is a small button on board "B" that is an NMI switch (non-maskable interrupt). This means that you can save to disk any program that you can load into the TS2068 or Spectrum. You no longer have to try to stop a program to save it, nor use one of the common copier software packages.

The DOS system, called SAFE, does all of the same things that cassette save commands do. No ram is taken up by the DOS, so in essence you should be able to load and save programs that use the total memory space. The DOS and an BK buffer are contained on Board "B" and are bank-switched. The whole affair is fully decoded and buffered so as not to conflict with any other hardware or software program.

No IN or Out commands to startup the system or peeks to VARS to identify code lengths or other such nonsense. You go about the commands by inserting a "\ " after the applicable call to save, load, move etc.

The NMI switch has a number of additional functions as well as to save to disk. If instead of a file number to save to, you were to hit the "C" key, the system will attempt to break into Basic. In other words, if a Basic loader still exists then you will find yourself with a HACKED program so to speak. Or if instead you hit the "Z" (copy) key and you have a printer attached, you would be presented with a screen dump. The program then continues along its merry way. One final point on the NMI, if you hit the NMI but don't touch the keyboard at all, you find that in effect you have a pause situation until you hit ENTER and continue on with the game.

The typical disk capacity under JLO with a standard double side double density is approximately 360K and for a Quad- 800K. It supports 5 1/2, SSDD, DSDD, Quad, and 3 1/2. What more do you want.

Think of the ideal situation and you have it with JLO. As a matter of fact, board "B" also contains a switch to choose JLO SAVE DOS or a DOS called OKDOS that is currently underway by Ray Kingsley. He's the M/C genius that wrote Hot Z. It should be good!

The after sales service is also most commendable. As new issues of the DOS become available, you are informed and if you send back the EPROM then the cost of the new upgraded version is \$10.00 US. Not a bad

deal under any circumstance. But don't take my word for it, write John Oliger for more information and see for yourself.

As a note of interest, the motherboard has 4 slots and John has just the things to fill them up. Such as a printer interface, a Kempston joystick interface, and an upcoming 64K bankswitched Ram card.

A review on all but the Ram card will be featured in later issues. If you wish to learn more about this system and would rather not write to John, write me instead at:

R. Mulder
648 Joannise Street
Gatineau, Quebec
J8R 1H1

COMMUNICATIONS

There appear to be a lot of people that have some interest in communications, BBS's etc. Well there are approximately 3 very good communications packages for use by owners of the TS2050 Modem. The 3 that I have are ZTERM-64, MTERMII, and SPECTERM-64. The first one requires that you have the OS-64 cartridge available from ZEBRA Electronics. It gives a full 64 column communications facility with XMODEM protocol facility. Other than that, it's essentially the same as MTERMII. The only problem here is that as a result of the shuffling of the display file to produce the 64 column mode, you only have 17K available as a buffer. The phone dialing is also improved with auto-redial, macros and a double speed dialer.

Specterm-64 on the other hand is nowhere as user friendly as either the other two packages but it does have its redeeming features. It runs in Spectrum mode, has a 31.7K buffer, Xmodem protocol, amongst others. The problems are, no real menus for ease of operation, parity must be setup from basic as well as disconnection from the telephone line. These are of some concern particularly if you forget that your still online when the other system has quit. One factor that may be a selling point is that there is a feature whereby, from within Specterm-64 you can call into basic to perform a special users function.

MTERMII, I believe most of you have already been aware of or in contact with. The only things that I can say about this package is that its very user friendly with its menus, performs as advertised but has a nasty habit of mis-dialing or crashing.

Something beyond the above programs, I have information of a solid nature that there is an individual in the states that runs a BBS on a TS2068 with **512K** bank-switched, a BBS system on cartridge and other odds and ends. What do you think of that!

More to follow on each or any of the above in upcoming issues. So stay ON-LINE!

- Does someone know how to put a Smith Corona Fasttext 80 into graphics mode and keep it there to produce screen dumps. Is there a printer software package available to do this?

- Where can a poor silly-servant get an RGB monitor for a reasonable price, new or used. You may ask what is reasonable. Does \$200-\$300 sound about in the range?

- Is there such a thing as a music program for the TS2068 that uses the sound chip/command in a professional package. Does it cover such items as drums, flute, synthesizer etc.. You should hear what the Commodore 64 sounds like and it uses the same sound chip. It should use all three channels as well as the noise registers at the same time. ??

- Is there a Basic ZBS system available for the TS2068, or Spectrum and who has it???

- More questions coming up as they occur. Is there someone out there who can answer these and other burning questions?? Put your answers in the Newsletter and address them as ANSWERS ANSWERS !!

R. Mulder

The following categories and associated programs will be reviewed in upcoming issues:

Graphic Arts
Programming Languages
Spreadsheets
Databases
Communications
Word Processing
Games - Arcade
Adventure
Strategy
War

Stay tuned in, on-line or whoever you wish !

MURPHY'S LAWS OF COMPUTING

If you take a computer apart and put it back together enough times, you will end up with two computersneither of which work.

The easiest computers to use are those you don't have to.

If you consult enough computer experts it is possible to confirm any opinion.

Postmaster, if Undelivered Return to :

Toronto Timex - Sinclair Users Club
P. O. Box 7274 Sin. A
Toronto, Ont., M5W 1X9
Canada

